Federal Aviation Administration's Associate Administrator for Commercial Space Transportation (AST)

Environmental Program

February 2001

Our History

In 1984, the Department of Transportation (DOT) was designated as the lead agency for U.S. commercial launch activities by Executive Order of the President. Later that year, Congress enacted the Commercial Space Launch Act of 1984 (CSLA), which authorized DOT to regulate U.S. commercial launch activities. Under the Executive Order and the CSLA, DOT had dual responsibilities:

1) to license and regulate all U.S. commercial launch activities to ensure that they are conducted safely and responsibly, and
2) to promote, encourage, and facilitate the growth of the U.S. commercial space transportation industry.

In November 1995, as part of a DOT reorganization, the office was transferred to the Federal Aviation Administration (FAA). Within FAA, the Office of the Director for Commercial Space Transportation was re-designated as the Associate Administrator for Commercial Space Transportation with the office designation AST. AST is the FAA's sixth line of business. In October 1998, Congress enlarged AST's role in the oversight of commercial space launch activities to include licensing of reentries and reentry sites.

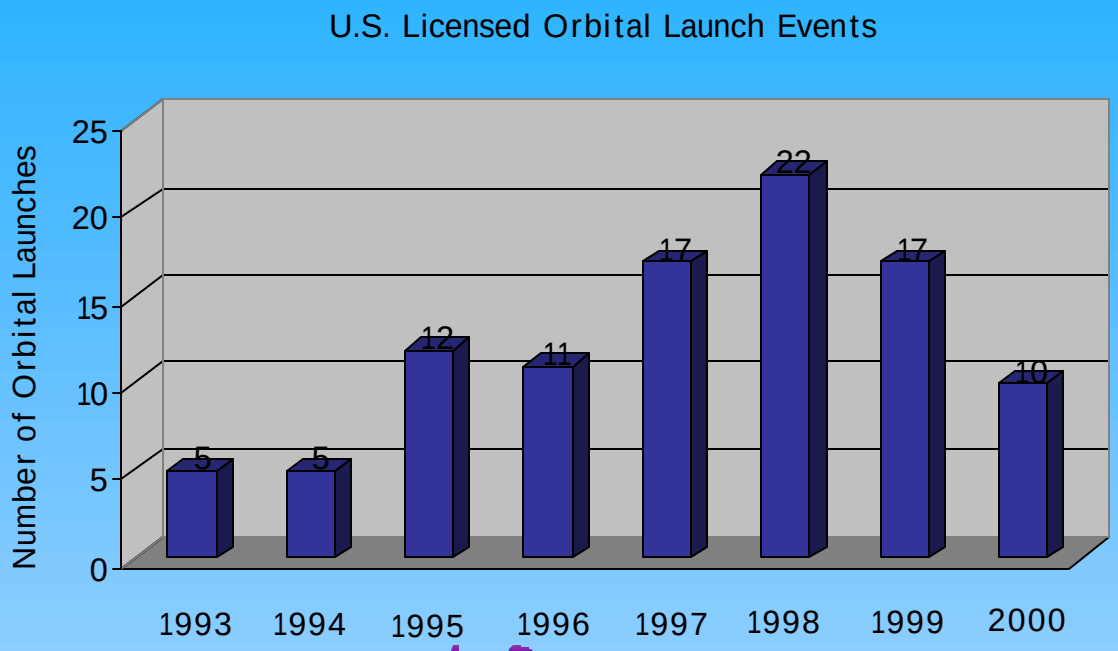
Recently, AST has finalized regulations, *Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations* (September 19, 2000), *Financial Responsibility Requirements for Licensed Reentry Activities* (September 19, 2000), *Licensing and Safety Requirements for Operation of a Launch Site* (October 19, 2000), and *Civil Penalty Actions in Commercial Space Transportation* (January 10, 2001), and proposed additional regulations, *Licensing and Safety Requirements for Launch* (October 25, 2000). Additional information and copies of these regulations can be found at http://ast.faa.gov

Our Mission

The mission of AST is to regulate the U.S. commercial launch industry and license launches, reentries, launch sites, and reentry sites. AST licenses these activities to protect public health and safety of property and to ensure national security and foreign policy interests of the United States during licensed launch operations.

Our Experience

In 2000, U.S. launch service providers conducted 10 launches licensed by the FAA. This represents a 41 percent decrease from 1999.

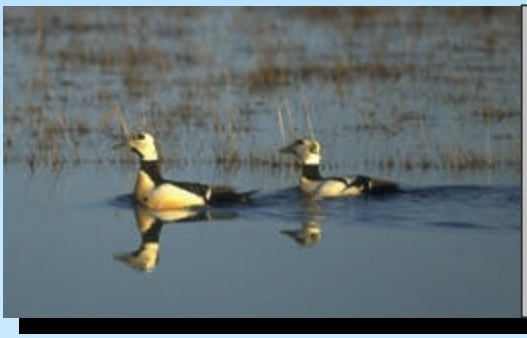


Environmental Program

AST licenses U.S. commercial launches, reentries, launch sites, and reentry sites. The environmental review component of the licensing process ensures that significant environmental impacts of commercial space launch activities on the human environment are fully considered in decision making. The National Environmental Policy Act (NEPA) of 1969, as amended, declares a broad commitment to protect, restore, and enhance the environment. It also requires that Federal agencies:

- consider the environmental consequences of proposed Federal actions and
- ensure that environmental information is available to public officials and citizens before decisions are made and actions are taken.

The licensing of launch activities, i.e., conducting launches, operating launch/reentry sites, or some combination, is considered a major Federal action. Consequently, AST is responsible for analyzing the environmental impacts associated with proposed commercial launch activities. AST is also responsible for preparing appropriate environmental documents such as Environmental Assessments (EAs) and Environmental Impact Statements (EISs) under NEPA. In addition to NEPA there are Executive Orders as well as other Federal, state, and local environmental requirements that may apply. AST integrates its compliance with all applicable laws in the NEPA document to the maximum extent possible.



Steller's eider observed near Kodiak Launch Complex

Environmental Documentation

EAs and **EISs** are specific to the proposed activities/operations that they address. There are basic elements that are addressed in both documents.

Purpose and Need for Action: Includes statutory mission and objectives for the proposed action and a discussion of why the proposed action is needed.

Description of Alternatives: General project progression, pre-operational activities, operational activities, and post operational requirements are discussed in this section. A reasonable range of alternatives must be addressed. As part of the alternative analysis, an alternative to take no action is also considered.

Affected Environment: Describes the baseline or existing environment. It describes environmentally sensitive resources that are present in the proposed project area that may be affected by the proposed action (e.g., floodplains and wetlands, threatened and endangered species, property of historic, archaeological, or architectural significance). This section addresses all physical, biological, social, and economic features of the human environment.

Environmental Impacts: Impacts considered include: direct, indirect, long term, short term, and cumulative. Potential environmental impacts of operational accident scenarios are also considered, including accidents that may have very large or catastrophic consequences, even if their probability of occurrence is low. All proposed actions must also comply with other applicable environmental requirements (e.g., Clean Air Act and Clean Water Act, etc.).

Mitigation and Monitoring Plans: Include appropriate mitigation measures including monitoring plans which outline steps to be taken by the license applicant to monitor potential impacts to the natural environment before, during, and after launch events.

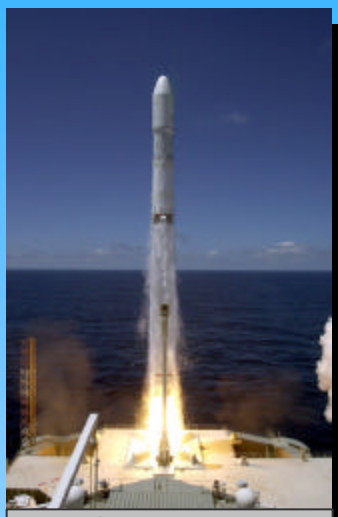
Accomplishments

Final Programmatic Environmental Impact Statement (PEIS) for Commercial Launches: The draft was released for public comment on September 1, 1999. The PEIS covers commercial launches and reentries from commercial launch sites, including those co-located on federal ranges and facilities, and those on non-federal lands. The PEIS assesses the potential environmental effects of launches from ignition, liftoff and ascent through the atmosphere to orbit, as well as the deposition of expended components down range from expendable vehicles and reentries of reusable vehicles at a programmatic level. Site specific documents will be completed as needed and will tier from the PEIS. During the review process 218 comments were received and responded to by the FAA. The final document is expected to be released in the first quarter of 2001.

Orbital Sciences Pegasus launch vehicle prior to launch

Accomplishments Continued...

Kistler Aerospace Corporation Launch and Reentry Site: The Draft EA and Proposed FONSI were released for public comment on April 21, 2000. Kistler proposes to build the first newly designed fully reusable launch vehicle that would be launched from a Kistler launch site located on the Nevada Test Site (NTS), a land-locked federal facility. The EA covers the proposed launch and reentry activities that would occur from the launch, reentry, and recovery areas on the NTS. A public meeting was held in Las Vegas, Nevada on May 2, 2000. Additional consultation meetings were held with potentially affected Native American tribes and organizations. During the review process 130 comments were received and responded to by the FAA. The final document is anticipated to be released in the second quarter of 2001.



July 28, 2000
Zenit-3SL Launch

Sea Launch: AST issued a Final EA with an environmental finding on February 11, 1999. Based on lessons learned from the successful demonstration launch in March 1999 and the first commercial satellite deployment on October 9, 1999, the Environmental Monitoring and Protection Plan was modified. The March 12, 2000 launch was not successful and environmental monitoring and failure reports were completed for this launch. Sea Launch resumed operations on July 28, 2000 with the successful launch and deployment of a PAS-9 satellite. On October 21, 2000 Sea Launch successfully launched and deployed the Thuraya-1 satellite. The potential environmental impacts of these launches were evaluated in Written Reevaluations. FAA is preparing an environmental assessment for a proposed launch operator license application to allow Sea Launch to conduct up to eight launches per year for five years over a range of equatorial launch azimuths.

Delta EELV Family - Boeing

Guidelines for Compliance with NEPA and Related Environmental Review Statutes: The existing document, *Guidelines for Compliance with the National Environmental Policy Act and Related Environmental Review Statutes,* has been revised to include reusable launch vehicles and reflect other agency changes. This document was made available on November 10, 2000.

Evolved Expendable Launch Vehicle (EELV) Supplemental Environmental Impact Statement (SEIS): The FAA worked as a cooperating agency to review and provide comments on the SEIS. In addition, FAA worked with the U.S. Air Force to address remaining issues regarding the SEIS.

NASA Non-Environmental Professionals Introduction to Environmental Management Program: The FAA presented a seminar to non-environmental professionals within NASA about the NEPA process and FAA/AST's implementation of NEPA and Executive Order 12114 with respect to several specific projects.

On-Going Activities

Update AST's WebPage: The environmental section of AST's WebPage is undergoing modification to include useful information for license applicants in a user friendly format. Additional updates will be made as necessary.

Proposed Commercial Space Launch Facilities in New Mexico, Texas, and Utah: AST is providing guidance and direction to organizations in these states planning commercial space launch facilities. AST has reviewed preliminary environmental documentation and provided feedback to a number of these states.

VentureStar Vehicle - Lockheed Martin

Prepared Finding Document for ICANo and Interorbital Systems Launch: AST prepared an environmental finding document for Initial Civilian/Amateur Near Orbital (ICANo) launches from Churchill Launch Facility, Canada and Interorbital Systems from a mobile floating launch platform off the coast of Vandenberg AFB. These launches were scheduled to be part of the Cheap Access to Space contest.

Cooperative Efforts

Homestead AFB: AST provided technical guidance to the USAF and FAA/Airports to complete the Homestead AFB Supplemental EIS which includes proposed launch operations as an alternative to the proposed action.


Launch at Night

X-34 EA: AST will participate as a cooperating agency with NASA in the environmental review process for the X-34.

Cooperating Agency Agreement with USAF: AST developed a cooperating agency agreement with the USAF to cover a range of space-related projects.

Kodiak Launch Complex: AST is working with the USAF as a cooperating agency on an EA to address proposed future launches of the Quick Reaction Launch Vehicle from Kodiak Launch Complex. FAA is also working with the Alaska Aerospace Development Corporation (AADC) to update the natural resources management plan for the Kodiak Launch Complex.

PEIS for Commercial Launches

The Draft PEIS for Commercial Launches was released for a 45-day public comment period on September 1, 1999. The Final PEIS is expected to be released in the first quarter of 2001. During the public comment period 218 comments were received from government agencies, industry and industrial organizations, academic organizations, and private citizens. These comments and responses prepared by FAA will be incorporated into a separate volume that will accompany the Final PEIS.

The PEIS was prepared to update a 1986 Programmatic Environmental Assessment for Commercial Launch Vehicles; to work in conjunction with other environmental documentation to support licensing of commercial launches; and to document compliance with NEPA requirements. In October 1998, AST's regulatory role in commercial launch activities was enlarged to include licensing reentries and reentry sites; therefore, these activities are included in the PEIS.

U.S. Launch Vehicles

The PEIS specifically addresses the environmental impacts of the proposed action of licensing commercial launches which is also the Preferred Alternative. Two other alternatives are also considered in detail. The more environmentally-friendly propellant combination alternative is examined whereby AST would emphasize licensing launches that produce fewer air emissions of concern. The No Action Alternative, under which AST would not issue licenses for commercial launches, is also considered.

Potential impacts of the proposed action and alternatives were analyzed in three major categories, atmospheric impacts, noise impacts, and other environmental impacts. Potential impacts to the atmosphere from launches were analyzed including such issues as ozone depletion and acid rain formation. Potential noise impacts analyzed from launch activities include the effects of acoustic energy from launches and sonic booms during flight on receptors (i.e., people, wildlife, and structures). Socioeconomic and environmental justice effects were also considered.

The environmental characteristics of six different ecosystems representing various existing and potential commercial launch locations throughout the U.S. and abroad were used to describe the range of potential commercial launches. The PEIS is not site-specific; any required site-specific environmental documentation would be developed as needed for individual launch operations and tier off of the PEIS.

Kistler: Reusable Vehicle Development

A Draft Environmental Assessment for the proposed Site, Launch, Reentry, and Recovery Operations at the Kistler Launch Facility, Nevada Test Site (NTS) was released for a 30-day public comment period on April 21, 2000. In addition, a public meeting was held on May 2, 2000 in Las Vegas, Nevada to record verbal comments from the public. These comments are addressed in a Comment Response Document which will be published as a second volume with the Final Environmental Assessment.

The EA for the Kistler Launch Facility addresses the environmental impacts of the proposed action of licensing commercial launches and reentries from the NTS. Impacts of various operations were considered including pre-flight processing activities, launch/flight operations, as well as landing and recovery operations at a private launch site (including vehicle processing facility), a vehicle reentry, landing and recovery area, and a payload processing facility. As a commercial venture, Kistler proposes to launch low earth orbit (LEO) communications satellites and other private and government satellites using a fully reusable two-stage vehicle (K-1).

K-1 Satellite Deployment

The proposed location for the Kistler launch facility is at the Nevada Test Site (NTS), on land withdrawn from the public domain for use by the U.S. Department of Energy (DOE). Therefore, DOE is serving as a cooperating agency for this Environmental Assessment. Prior to selecting the NTS as its launch location, Kistler explored alternatives throughout the United States. Kistler considered locating at the California Spaceport at Vandenberg Air Force Base, Spaceport Florida Authority's Launch Complex at Cape Canaveral Air Station, and the proposed Southwest Regional Spaceport near White Sands Missile Range in New Mexico.

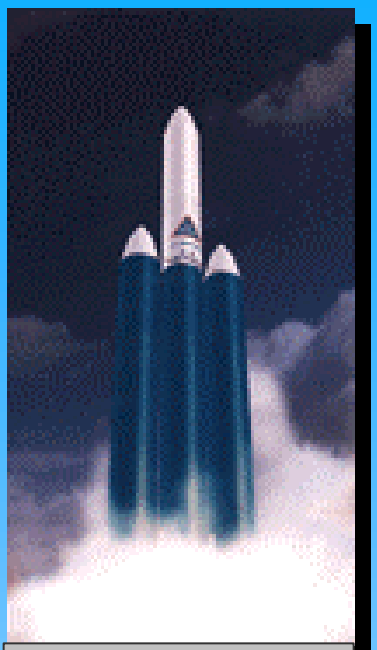
Potential impacts of the proposed action including safety and health, land use, air resources, noise, socioeconomics, visual resources, water resources, geology and soils, cultural and Native American resources, and transportation were considered in the Environmental Assessment.

Cumulative impacts resulting from the proposed action which were specifically considered include air emissions, reusable launch vehicle engine noise, socioeconomic factors, biological resources, and cultural and Native American resources.

This Environmental Assessment is the first NEPA document to address a reusable launch vehicle intended for commercial launches. Following the resolution of remaining issues and the final incorporation of public comments, the Comment Response Document and the Final Environmental Assessment will be released. It is anticipated that this will occur in the second quarter of 2001.

Kistler: Reusable Vehicle Development

1. Launch
2. Staging/First Stage Return
3. Orbital Vehicle Ascent
4. Satellite Deployment
5. Reentry
6. Landing



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Visit AST's Website: http://ast.faa.gov/

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